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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JUNPEI OGAWA, TOMONORI MIYAZAWA,
YOSHIO OKADA, JUN IKEUCHI,
and MASASHI YAMAGUCHI

Appeal 2007-2800
Application 10/771,522
Technology Center 3600

Oral Hearing Held: April 10, 2008

Before TERRY J. OWENS, HUBERT C. LORIN, and JOHN C. KERINS, Administrative Patent Judges

ON BEHALF OF THE APPELLANT:

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The above-entitled matter came on for hearing on Thursday, April 10, 2008, commencing at 9:40 a.m., at the U.S. Patent and Trademark Office, 600

Dulany Street, Alexandria, Virginia, before Ashorethea Cleveland, Notary Public.

PROCEEDINGS

MR. COSENZA: Good morning. My name is Martin Cosenza. I represent the inventors. I'm here with Glenn Law and, also, as a company representative of Nissan, Mr. Takashi Imaizumi.

Good morning. Thank you for hearing us. Initially, I'm going to present a road map and some oral argument.

As a preliminary matter, I think that if I just describe this invention, it's going to go a long way to reverse the rejections.

So, my road map is going to talk about what the invention is; hit the two independent claims; talk about some of the elements that don't lend themselves to illustration in a patent drawing, per se, because there's a lot of verbiage in the office action and in the briefs about issues with the drawings.

I'm going to talk about how the apparatus is claimed as manufactured because that's an integral part of applicant's invention which improves upon prior art.

This manufacturing method is not disclosed in the references. Why is that important? Because there's an assertion in the office actions and in the brief that the manufacturing method in the cited references is the exact same thing that the inventors are doing; and that's not the case.

Then we'll talk about the claims, why they satisfy 112, first and second paragraph, and then why they're not anticipated.

Claim one -- I'll approach for a minute -- has basically two parts. The first part, these paragraphs here, are essentially a picture patent. They're describing this connecting rod right here. The connecting rod is the part that connects the pistons to the crank shaft. It's a part that really gets abused. You have 5,000 RPMs up and down, et cetera.

The claim recites it as a big end; a small end, and this connecting section in the middle. Then you have, more importantly, this first joining section and then the second joining section, there and there, which in the last paragraph has the feature that the sections gradually and continuously decrease in cross-sectional area towards this connecting beam in the middle.

Now, critical to this claim is the recitation that in these joining sections there's a strength distribution in which a strength increases with a decrease in the cross-sectional area. This is counter to how prior connecting rods work. Usually the smaller the cross-sectional area the weaker the part.

You will see in figure seven in the specifications -- these are reproductions exactly from the specification as filed -- you have a chart that shows buckling strength versus cross-sectional area as you go through Sections P1, P2, P3; P1, P2, P3, four, five and six. You'll see this is lined up with these sections. You see the buckling strength starts out here and then it shoots up; goes over here, and goes down again. And then you have your cross-sectional area which is going down as this is going up and then vice versa.

Some of the other figures talk to strain, et cetera.

Claim 19 has basically two sections just as claim one. The first part is essentially about the same as claim one. They're not at issue at the moment.

The last two paragraphs recite this variation in the strength. I won't belabor the point, other than to mention that the highlighted language here is the only language at issue and it's only a 112, first and second paragraph rejection. There's the really two main differences in the claim for the purposes of the issues on appeal.

The manufacturing method. The inventors use heat treatment just as the priority utilizes heat treatment. The key is that applicants use their heat treatment in a different way to get a different product entirely as recited in that last paragraph.

Heat treatment of course is just a process where you vary -- you heat treat a steel versus an unheated piece of steel. The heat treated piece of steel will be harder than the other ones; that is, if you have one cubic inch piece of three or four stainless steel that's heat treated versus one that's not it will look the same visually and especially in a drawing. But when you do a destruct, when you bring out hardness tests, et cetera, it's going to be stronger than that unheat treated piece of steel.

The advantages of -- the maximum load that the piece of steel can withstand is increased but the drawback is that when you make a steel harder it's more difficult to machine especially when you have a highly-tolerance part such as this connecting rod which interfaces with the crank shaft here on this side which is rotating at 5,000 RPM when you give it gas and the piston up here which isn't a full-rotational movement but is more of a rocking movement.

In other words, these parts have to be precisely machined, highly-tolerance. They have to be concentric, a lot of geometrical dimensioning and tolerancing on the drawing. Difficult. It has to be perfect

for the life of an engine, 150, 200 thousand miles; and it's going to be subject to a lot of heat.

There's the saying that the inside of an engine is the closest thing to hell that a mechanical engineer has ever come up with because it's hot and things are banging around. It has to be perfect.

The harder this is, the harder these areas are here, the stronger these areas are here, the more difficult it is to machine and the more effects you have.

JUDGE OWENS: Was it known in the art of heating a connecting rod using a coil like that or any type of coil as opposed to putting it in a furnace or whatever?

MR. COSENZA: I know that there is in the art. It's known to run an induction current through the thing, through the connecting rod, and that could be, as far as I know, the equivalent of connecting electro here to here and running the current through it so that the internal resistance heats it up. I don't believe that's the case.

JUDGE OWENS: Maybe a wrapping of around the whole thing?

MR. COSENZA: Maybe the whole thing. That might be another way to do it.

Frankly, I -- I was an engineer for Boeing for seven years; spent a lot of time with machine shops and I have not encountered this.

But along those lines, that is how applicant's invention -- or how their process differs from the prior art. They are only putting the coil at certain sections.

I mean, you could do this other ways. If you can do it with a blow torch, you know, go for it. I don't think that would be feasible.

The gist of it is, it's a targeted surgical heat treatment to only specific parts. Only the parts that need to be strong or stronger relative to their size in view of these decreased and cross-sectional areas.

These parts here are not heat treated to have that high strength; and so, therefore, they can be much more easily machined, you know, whereas the prior art whole thing is the same strength all along.

Prior art is a stronger connecting rod throughout, of course, but it's stronger in a place where you really don't need that strength. It's probably more reliable. You don't need the reliability.

You know, what is the advantage of this in real terms? This quick illustration. Using a uniform heat treatment process you might only be able to make four batches, for example, of the connecting rod before the tools wear out and you have to replace them.

Using this, the targeted heat treatment process, you can double or triple or however, you know, increase production quantities accordingly, using the same type of tools.

When you think -- you know, you're building how many? Two million, three million engines per year. Each of these have four, six or eight connecting rods, not including spare parts. You're talking about -- you know, any efficiencies that you can obtain in the manufacturing process will go a long way to making your bottom line.

I think what GM makes, as an example -- not illustrated with the client, Nissan. But I think they make like 20 or 30 dollars per car on some of their models. This can be a tremendous -- you know, pennies can result in a good increase share price.

Prior art heat treats the whole thing; therefore, it's just harder than necessary to machine.

Are there any questions at the moment before I start talking about the rejections?

JUDGE KERINS: I have a question. A lot of your discussion is about the advantages of the your processing but I don't see steel mentioned.

MR. COSENZA: The reason I talk about processing, the only reason is that the prior rejection -- in fact, all the rejections are based on this assertion that what the inventors are doing is the same thing that's being done in the prior art; therefore, this element here in the claim regarding the strength distribution is inherently present in the prior art. That's all.

We would have been happy to just take the claims as they are, boom, boom, boom; identify each element in the art, and say where this strength distribution exists in the art.

I'm hoping that these processes will be -- when I talk about the prior art, will help illuminate the issue, you know, some of the Examiner's assertions, or dissuade them.

JUDGE OWENS: Yeah. I would be interested in seeing the difference in the process because your discussion of strength distribution relates to the steel.

MR. COSENZA: Yes.

JUDGE OWENS: I mean, but the claim could cover any material. It could be plastic. It could be any of those.

MR. COSENZA: Okay. So be it. The key is, in that regard then, to anticipate claim one you would have to find a plastic connecting rod that looked like this based on all

the -- you know, the beginning part of the claim, and then have a strength distribution that follows, for example, let's say this curve where the strength increases as the cross section decreases. So be it. If that was in the prior art, well, then you know.

Presumably this is the best piece of prior art that the Examiner identified; and you make connecting rods out of steel. I don't know. Maybe you could make them out of aluminum; but as far as I know, they're made out of steel.

The inside of the engine is a very, very violent environment.

JUDGE OWENS: Well, the point they're trying to make is this last clause in the claim where the joining sections are gradually and continuously decreasing in the cross sectional and has a strength distribution --

MR. COSENZA: Correct.

JUDGE OWENS: -- which increases with a decrease of the cross sectional area.

MR. COSENZA: And that's not in the prior -- I'll explain; and I think after I get through this section, it will become more apparent.

Rejections. Claim 19 is not rejected in view of the prior art. There's only a 112 rejection against that.

Claim one is rejected under 102. Claim one is allowable in view of 102 because the references do not explicitly or inherently describe each and every element of any pending claim, and thus they can't anticipate the claim.

We'll go to that last paragraph, the strength distribution paragraph.

None of the cited references -- there's three of them -- expressly teach or describe this feature.

JUDGE OWENS: Would you address the Examiner's argument regarding Figure 12 of JP 317?

MR. COSENZA: Yes. This being Figure 12?

JUDGE OWENS: Yes.

MR. COSENZA: Yeah. Can you give me about a minute?

JUDGE OWENS: Sure.

MR. COSENZA: Okay. Because it's down here. If they don't expressly teach, they must inherently teach it, and they don't inherently teach it.

Going to the 102 rejections, the rejections are founded on the assertion that the connecting rod disclosed in the prior art look like ours. Okay. Assume arguendo that's the case. But it's coupled with the incorrect assertion that they're made the same way as inventor's; so, they must necessarily inherently have the recited strength distributions. They're not made the same way.

Again, there has been no teaching of this targeted, specific heat treatment. At most, in that Japanese reference, the 317, there is heat treatment. Okay. So be it; but they heat treat the whole thing.

To jump ahead to the Japanese reference, preliminary matter, the three cross sections -- and I've put this together against our connecting rod, the claim connecting rod.

The three cross sections that were identified in the office action all passed through sections that are outside of the recited scope of that last paragraph.

That is, here this is the area and this is the area where you have this variable cross section. This is not variable cross section, this area. It's not a decrease in cross section.

In fact, if you cut through with it, it's right through the center and it increases on either side of it. Here it just constant; goes right through the center, and here again it's right through the center and it's an increase.

Conversely, we're interested in this area here and this area here which has that varying cross section.

JUDGE OWENS: In Figure 12, the Japanese reference, isn't it the case that Section A is actually through what you call the big end?

MR. COSENZA: Yeah. Section A is through the big end. Thank you. That's a better way. Section A is through the big end; Section C is through the small end, and
Section B is through the connecting section.

The action occurs in these areas here which is where you get this -- you know, where you have this dichotomy of material getting -- you know, you're getting less and less material but it's getting stronger and stronger and stronger.

JUDGE OWENS: Would you say Figure 12 shows any strength distribution?

MR. COSENZA: Figure 12 shows a hardness distribution. These are hardness -- what they did is, they cut the thing and probably did a Brinell hardness test or something or other along those lines.

To the extent, the correlation between hardness and strength -- what this shows at most is that the distribution is the same throughout the piece. The numbers. They're all within the margin of error of the testing machine.

It's plus or minus .14 percent. This is indicative of the traditional method of taking a connecting rod and heat treating the whole thing.

The strength here based on these, the numbers, is the same as the strength here and the same as the strength here. But even if it wasn't, it's still not saying anything about what's going on in my two sections, in the adjoining sections.

JUDGE KERINS: In the Japanese reference, is that a type of material that hardness is directly correlatable to strength? Can we assume that?

MR. COSENZA: Just for the purpose of the argument, for the moment, let's say we assume that. I don't see how that would impact anything.

I mean, let's just say this was strength, boom, boom, boom, and plus or minus .14 is -- you know, again, any machine that tests that -- you know, I guess theoretically you could -- you could spend a lot of money to get something down to a plus or minus, you know, a thousandth of a percent.

But the point is, for reliability, any statistical analysis used in the reliability arts and used in the metal analogy art, these numbers are the same and we'll say the strength is the same, if we make that correlation.

But again, this is where we're talking. We have this section that's changing, you know, with the cross sections as changing. In these sections, the cross section is not changing, in a manner where it's decreasing.

Again, the 102 rejection was based on that it was inherent. It's not inherent because we do things differently. It's different.

Mrdjenovich and Haman are even less specific. Mrdjenovich references heating in the abstract. Haman doesn't mention heating at all.

Neither recite a strength distribution or hardness data. So, you just don't have the variations of this claim.

May I move on to the 112 rejections very briefly? Claim 19 not rejected in view of the prior art. Claim 19 is -- there are some differences from claim one. But the main point is, the rejection is asserted to be a written description. We're not entirely sure that's the case because we pointed out at least, you know, based -- that the Examiner corrected, that he's rejecting under written description because -- we pointed out how claim 19 is almost a verbatim duplication from the original filed claim 19; and we were told that that's not germane.

You know, In re: Wertheim says there's a strong presumption that written description requirement is met for an originally filed claim. If he's saying In re: Wertheim doesn't apply then what are we talking about? Some other section of 112? Enablement? You know, it's not prior art.

But anyway, applicants are fine under either, either the enablement requirement or the written description requirement.

Regarding written description, in only a very few cases, all of them from what I know have been the biotech arts, has an originally filed claim been found to not satisfy the written description requirement and those were in arts where the predictability was -- it was unpredictable and thus the -- it was unclear whether the inventor had possession of the invention. In this art, you know, the mechanical art -- that's not the case here. There is no unpredictability.

And regardless, on the record there has been nothing along those lines asserted.

There's a lot of verbiage about the drawings, not showing this and that feature. But there's no requirement that there be drawings for a written description requirement.

A picture is worth a thousand words but the corollary of that is just the same. A thousand words is the equivalence of a picture; and our 45-page spec -- 40-page spec -- has those thousand words in it.

Regardless, the graphs, Figs. 7 and 9 do illustrate what is going on here, you know, how the strength is changing for cross sectional area.

You can't draw something and say, oh, that's 150 KSI versus this part is as 120 KSI. You just can't draw that. In any event, they're in the graphs.

The ordinary artisan would understand how appellants make this invention. There were some assertions in there.

Enablement. Briefly, you know, pages 12 to 40. You know, we provide numerous examples. We detail specifically how the targeted heat treatment is done and how you arrive at the present invention.

Certainly there's enough information here to allow the ordinary artisan to make and use this invention, if indeed the rejections are enablement rejections based under the guise of written description.

Finally, there is a 112, second paragraph rejection against claim 19 and 21 through 25.

You know what? Back to the written description requirements. The claims as written are almost a verbatim of the original-filed claim. We made some amendments for antecedent basis purposes and basically the name, some elements -- they're the same. It's in the appeal brief.

And something I didn't point out in the appeal brief is that the 112, first and second paragraph rejections were made even before we made those

amendments. So, they're not stemming from the fact, you know, there are slight variations in claim 19.

In the end, the rejections were made based on claim 19 as originally filed; and again, we point to In re: Wertheim as to what that means.

Second paragraph. The claims are self-describing. You have, you know, an element here, an element here, an element here and it has these, big "N," little "n," and then you have this varying cross section. The ordinary artisan would want to understand that just like "see Figure 12 of the prior art Japanese reference that shows cross sections," so they'd understand that, and the term "varying" would be understood.

The strength distribution would be readily understood because you can test this. You can test this using machines from, for example, Entron. You know, it's one of these testing machines where they rip it apart; or here, like, you know, they're crushing like a coke can or some type of power drink or something.

You know, this stuff is very easily tested. I mean, I did this 20 years ago in college. Was it that long? In any event, they can understand that.

Now, interestingly, in the last office action -- and I'm just about done -- the claims were alleged to be not understood. Now, in the reply brief, the claims were asserted to be inconsistent with the specification.

I propose that to the extent there's inconsistency, it's inconsistency on how 112 indefiniteness is being applied.

Again, even without specification, the claims are clear.

The rejection is based on an objective requirement of 112, what the ordinary artisan would have understood; and there's no evidence. There's no

evidence here as to what the ordinary artisan wouldn't have understood. So, there's no analysis.

The Examiner repeats the language of MPEP2173.03 in his reply brief; and that's entitled, "Inconsistency Between the Claims and the Specification," and he refers to one case cited therein. He doesn't refer to it by name. He just says, "Cases cited therein."

This case, In re: Cohn in the MPEP is a situation where the claim language was "inherently inconsistent," and I quote, "with the specification." Well, that's a high standard.

In any event, there's been absolutely no application of the facts, you know, or correlation between the facts of In re: Cohn and the facts at hand here.

Irrespective of that, you look at the written description rejection. It's based on the fact that we don't show something in a drawing.

Well, I propose that how can you have something -- how can a claim be inconsistent with a drawing if it was something that's not shown in the drawing?

I mean, if you say two plus two equal four and the spec says two plus two equals five, yeah, there's an inconsistency. But if you say two plus two equals four and I show you a blank page, it's not inconsistent.

The facts of In re: Cohn just aren't applicable here, and there's been no application along those lines.

Final point. The drawings and specification text are not a requirement for Section 112, second paragraph; and to circle full back, In re: Cohn was about the situation where the spec was just plain different.

Absence of information in the spec and the drawings does not run afoul of this very unique area in In re: Cohn.

If you take a look at that section, it talks about how, hey, you know, claims -- it's a very, very, very rare area and not as rare as the written description issues with the biotech cases but it's still rare.

That concludes my presentation. Do you all have any questions?

JUDGE OWENS: Any questions?

JUDGE KERINS: No.

MR. COSENZA: Well, I thank you; and I apologize for taking so much of your time.

JUDGE OWENS: Thank you.

(Whereupon, at 10:05 a.m., the proceedings were concluded.)